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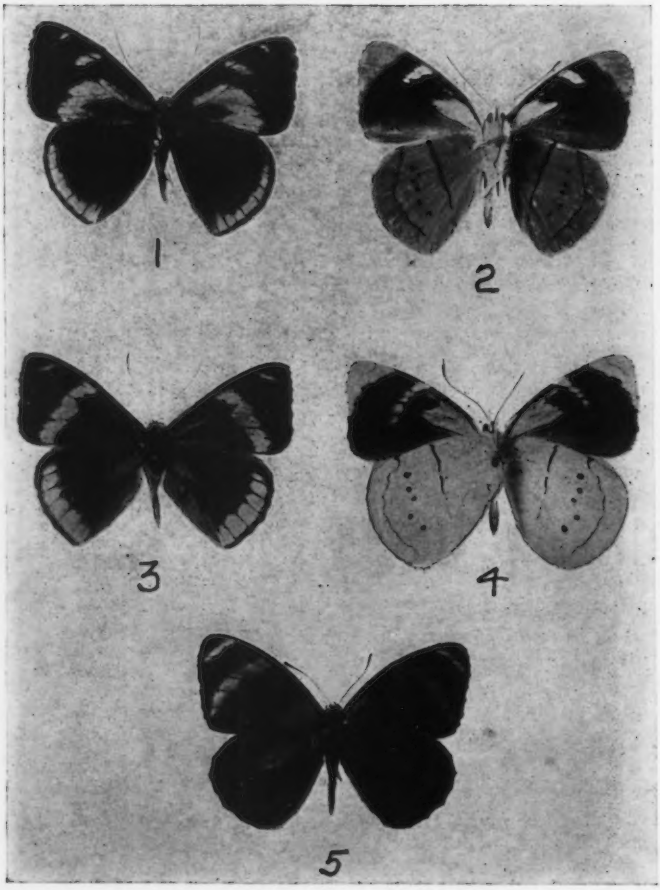

NEW AND RECENTLY DESCRIBED LEPIDOPTERA.—MENGEL

1, 2, *Perisama inconspicua*; 3, 4, *P. sinerubra*; 5, *Catagramma horstii*.

ENTOMOLOGICAL NEWS

AND

PROCEEDINGS OF THE ENTOMOLOGICAL SECTION

THE ACADEMY OF NATURAL SCIENCES, PHILADELPHIA.

VOL. XXX. JULY, 1919. No. 7.

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A new Perisama from South America (Lepid., Rhop.).

By LEVI W. MENGEL, Reading, Pennsylvania.

(Plate VIII.)

Perisama sinerubra n. sp.

Expanse 43-45 mm. Upper side—primaries black with broad diagonal blue-green bar from middle of costal margin to the exterior angle. There is a small dash of blue-green near the apex. A few bars of the same color radiate from the base.

The inferiors are black with a bluish reflection toward the base. There is a broad marginal band of the same blue-green color. Fringes of wings white.

Under side—primaries largely black with a white spot in centre of the costa changing to blue and extending halfway across the wing, toward the exterior angle. Base of wing gray, changing to blue. Apex of wing light gray, with a faint black band dividing the gray color almost equally.

Under sides of inferiors without red costal and basal bar. Uniform gray in color. A thin black bar extends from the costal margin toward the inner angle. A black marginal band, comparatively regular, extends parallel along the exterior margin.. There is an irregular row of 5 black spots in the wing between the bars.

Sinerubra is nearest to *P. cotyora* Hew., from which it is very different.

Described from 7 specimens from Cavinas, Bolivia. *Type*—The Academy of Natural Sciences of Philadelphia. Paratypes—Collection Mengel.

EXPLANATION OF PLATE VIII.

Figs. 1-2, *Perisama inconspicua* Mengel, Bolivia. (Ent. News, xxvii, p. 423, 1916).

Figs. 3-4, *Perisama sinerubra* Mengel, Bolivia, n. sp.

Fig. 5, *Catagramma horstii* Mengel, U. S. Colombia. (Ent. News, xxvii, p. 423, 1916).

Preliminary Key to the Nearctic Species of Eupteryx (Homoptera; Eupterygidae).

By W. L. McATEE, Biological Survey, Washington, D. C.

For bibliographic references and history of the genus *Eupteryx* Curtis, see article by the writer on Genera of the Eupterygidae, Proceedings of the Biological Society of Washington, Vol. 31, pp. 109-124, Nov. 29, 1918.

Diagnostic characters in this family: Membrane without appendix; hindwing without submarginal vein, and with three apical cells.

After determining that forewing lacks appendix, the easiest method of recognizing *Eupteryx* is to lift outer apical part of forewing; if the hindwing then exposed has no submarginal vein and the first two sectors are joined by a crossvein, the insect is a *Eupteryx*.

Key to the Species.

A. Fourth apical cell of forewing distinctly 5-sided (in other words, the second sector forms part of the outer border of the cell); three black spots on vertex, three pairs of irregularly oval, brownish, ocellate spots on disc of forewings.....*melissae* Curtis.

AA. Fourth apical cell of forewing 4-sided (second sector does not form part of its outer border, no more than tangent to it, and sometimes separated by a short stalk); coloration otherwise.

B. Forewings white; vertex, thorax and scutellum mostly black, *vanduzei* Gillette.

BB. Forewings not white; general color above smoky to blackish sometimes varied with yellow or sanguineous, *flavoscuta* Gillette.

Eupteryx melissae Curtis.

Eupteryx melissae Curtis, John. British Entomology being Illustrations and Descriptions of the Genera of Insects found in Great Britain and Ireland, Vol. 14, No. 640 [p. 2], April, 1837 [Niton].

A group of nominal European species which are very closely related includes *urticae* Fabricius, *melissae* Curtis, *stachydearum* Hardy and *collina* Flor. Characters adequate for distinguishing these species have not as yet been pointed out. Of the four names *urticae* is the oldest (Fabricius, 1803), and in case all are synonymous, has priority. However, *urticae* by one character—half of hind tibiae being black—is contrasted with the other three, and may be varietally if not specifically distinct. The next oldest name—*melissae* Curtis—is, therefore, here adopted. Its synonymy appears to include:

Typhlocyba stachydearum Hardy, James. Descriptions of some new British Homopterous Insects. Transactions of the Tyneside Naturalists' Field Club, 1, 1846-50 (1850), pp. 422-3 [Axwell Park].

Typhlocyba collina Flor, Gustav. Die Rhynchoten Livlands in systematischer Folge beschrieben. 2, 1861, pp. 433-5 [Kudling, Segewold, Kremon].

Eupteryx quinquemaculata, Baker, C. F. New Typhlocybini. Invertebrata Pacifica, Vol. 1, p. 8, Sept. 15, 1903 [Stanford University, California].

Head evenly and fully rounded both laterally and vertically. Length of vertex: interocular width:: 6:10. General color of upper surface of body and of the legs pale yellow; of forewings delicate green fading toward apex; eyes yellowish green. Head with 2 smaller spots on front, 2 larger on transition from front to vertex, and one of about same size on middle of hind margin, black. All of these spots vary from round to V-shaped or quadrangular; hence do not have the importance in distinguishing species assigned to them by European authors. Pronotum with two black spots, just behind median spot on vertex, and one lying just behind and to the side of each of these. Most of disc of pronotum covered by a greenish fuscous cloud, nearly touching the black spots. A dimly visible brown line connects the black spots, and, being a little more conspicuous at the ends, forms a curved brown dash, to the outer side of each of the posterior pair of dots. Scutellum with two pairs of black dots, the anterior larger and more separated.

Forewings with irregular greenish fuscous markings, the color deepest at periphery (like blots the center of which has been sucked up), as follows: One larger and a few smaller on inner anterior angle of

forewing, three larger (the median decidedly so) on main body of clavus and a long narrow one along whole claval suture; between second and third sectors, three, of which the anterior is largest; and one just outside latter on costa. The veins of the apical cells are margined with brown clouds and there are two black spots near exterior border of wing at a point two-thirds of the distance from base.

Long triangular mark on cheeks below insertion of antennae, lower surface of thorax and entire abdomen black, the segments of latter margined posteriorly (sometimes very broadly) with yellow. Last ventral segment yellow, genitalia chiefly yellow in male, mostly black in female. Tarsi and apex of beak black. Length 3-3.25 mm.

Specimens examined: North East, Pennsylvania, Oct. 10, 1912, F. Johnson (U. S. N. M.). Hagerstown, Maryland (U. S. N. M.).

Eupteryx vanduzei Gillette.

Eupteryx vanduzei Gillette, C. P. American Leaf-hoppers of the sub-family Typhlocybinae. Proc. U. S. Nat. Mus. 20, No. 1138, April 20, 1898, pp. 748-9, Figs. 98-100 [Hamburg, New York].

Scutellum and anterior parts black or blackish shading into pale yellow on anterior margin of vertex and upper part of face; lower part of face smoky. Legs, except tarsal claws, and abdomen pale yellow. Both pairs of wings milky white; apical cells of forewings fumose. Length of vertex: interocular width:: 7:13. Length of insect 3.5 mm.

One specimen only, the female type, New York. Type No. 3439, U. S. Nat. Mus.

Prof. Gillette states that this and six other specimens (of the same sex) used by him in original description were collected by E. P. Van Duzee at Hamburg, New York, July 10.

Variations mentioned by Gillette are whitish markings on posterior margin and angles of pronotum, and on apex of scutellum, and dark coloration of tarsal apices and of basal segments of abdominal tergum.

Eupteryx flavoscuta Gillette.

Eupteryx flavoscuta Gillette. Proc. U. S. Nat. Mus. 20, No. 1138, April 20, 1898, pp. 749-50 [Hamburg, New York].

Eupteryx nigra Osborn, Herbert. Jassidae of New York State. 20th Rep. State Entomologist, 1904, in 58th Ann. Rep. N. Y. State Museum, 1904, Vol. 5, Appendix 7, 1906, pp. 543-4 [Jamaica, New York; Columbus, Ohio].

The original account of this species states that the type locality is Hamburg, New York, and that the type is in the U. S. National Museum, No. 3440. There is no specimen in the Museum from Hamburg, N. Y., and that bearing No. 3440 is from Washington, D. C., June 23, 1890. If this is really part of the original material, it is only a paratype; the whereabouts of the holotype is unknown to the writer.

Key to Color Varieties.

A. Thorax with a median and 2 marginal sanguineous vittae, var. *juvenis* n. var.

AA. Thorax without sanguineous vittae.

B. Scutellum with broad median yellow vitta.

C. Costa broadly and clavus chiefly yellow...var. *clavalis* n. var.

CC. Costa less broadly yellow; clavus with only a faint spot, var. *flavoscuta* Gillette.

BB. Scutellum without yellow vitta.....var. *nigra* Osborn.

Eupteryx flavoscuta var **flavoscuta** Gillette.

For convenience, description of the typical variety is given first and with it are included the few details of color and proportion that, so far, seem to have specific value.

Smoky brown to blackish above, except anterior margin of vertex, an indistinct spot on clavus, and broad median vitta on scutellum pale yellow. The costal margin of the forewing, except sometimes at middle, is more or less broadly yellow, sometimes overlaid with pruinosity, apex of wing fumose hyaline, clear near margin, first, second and third apical cells with clear spots, that in first the largest. Face, legs and underparts pale yellow, abdominal segments and genitalia more or less margined with brownish. Length of vertex: interorbital width:: 1:2. Length of insect 3.3 mm.

Specimens examined: Greensburg, Pennsylvania, July 24, 1904, M. Wirtner; also same locality, no date (U. S. N. M.).

Eupteryx flavoscuta var. **clavalis** new variety.

Unusually wide vittae on scutellum and costal margin and almost whole clavus pale yellow.

Specimen from Uhler Collection, labeled only Sept. 23. Type (U. S. N. M.).

Eupteryx flavoscuta var **nigra** Osborn.

Scutellum concolorous with general dorsal surface.

Specimens examined: Columbus, Ohio, Sept. 15, 1903. [Paratype kindly loaned by H. Osborn and now in his collec-

tion.] Penn. Sta., Pennsylvania, Sept. 4, 18, 1904, M. Wirtner. [U. S. N. M.]. Patton, Pennsylvania, Sept. 25, 1902, M. Wirtner. [U. S. N. M.]. Orono, Maine, Aug. 31, 1913 [H. Osborn]. Bar Harbor, Maine, Aug. 31, 1913 [H. Osborn]. Washington, D. C., June 23, 1890 [U. S. N. M.]. Difficult Run, Virginia, July 25, 1915, C. P. Alexander [W. L. M.]. Specimens from Uhler Collection, labeled only Sept. 23 [U. S. N. M.].

Eupteryx flavoscuta var **juvenis** new variety.

General color decidedly lighter than in the other varieties, being grayish smoky; vertex with two sanguineous vittae closely bordering median line; thorax with narrow median vitta and sides behind eyes also sanguineous.

The specimens examined, from Orono and Bar Harbor, Maine, Aug. 31, 1913, kindly loaned by Prof. Herbert Osborn, in whose collection they are, are more or less teneral, leaving the question of fully matured appearance and perhaps of the varietal status of the form in doubt. The type is a male from Bar Harbor.

New Species of Buprestidae (Col.) from the Western United States, with Supplementary notes concerning others.

By Edwin C. Van Dyke, University of California, Berkeley, California.

(Continued from page 156)

Acmaeodera squamosa n. sp.

Form short, cylindrical, hardly depressed, piceous bronzed, clothed on both upper and under surfaces, except the apical ventral of females, with minute white scales which, under high power magnification, are shown to be tuft-like, each elytron with two rows of small elongate reddish yellow spots, the first row on the third interval and the second on the ninth or humeral interval, the discal spots being placed, the first at about the middle, the second midway between that and apex and overlapping laterally on to the fourth and fifth intervals, and the third about equidistant between this last and apex, the lateral spots with the first just posterior to umbone, the second near the middle, and the third and fourth following closely behind. Head coarsely, shallowly and closely punctate, with squamules arising from each puncture,

front feebly impressed, no carina, clypeus deeply semicircularly emarginate, antennae with fifth joint suddenly dilated; thorax unicolored, nearly twice as wide as long, apex narrower than base and bisinuate with median lobe projecting forward over head, the base truncate, the sides rather strongly arcuate from base to apex, margin fine, not visible from above, disc convex, coarsely and closely punctate and with squamules as on head, the median longitudinal impression well-defined, lateral foveae at base within posterior angles.

Elytra almost four times length of prothorax, umbone well developed, sides sinuate before middle, margin serrate posteriorly, disc convex, striae with deeply impressed large round and approximate punctures, intervals somewhat convex, the alternate more prominent, with double but irregularly placed rows of punctures, the squamules arising from all punctures.

Body beneath of a brilliant purplish coppery color and densely squamulose, coarsely closely punctate in front, much finer posteriorly, the apical segments in the female also quite granulose and furnished with rather long semi-erect silken hair which curves toward the front, the anterior margin of prosternum slightly sinuate, the fifth ventral without any trace of subapical carina. Length 7.5 mm., breadth 3 mm.

This species is most closely related to *A. guttifera* Lec. and is no doubt congeneric but is now most decidedly distinct. It differs from *guttifera* in being more robust, by having the prothorax more grossly punctate, the elytral intervals not flat but somewhat convex, especially the alternate ones, and with a double series of punctures, by having the prosternum of a slightly different type, and by having a dense squamose vestiture instead of a sparse hairy one. This vestiture covers the entire under surface in the male and all but the apices in the female, these last segments in this sex having the long silky hair as in *guttifera*. This is the species listed by Fall[5] as a variety of *guttifera*. I have a number of typical *guttifera* in my collection, also several *A. versuta* Horn, now considered to be the males of the preceding, and have seen numbers of others. They all agree in the essentials of sculpture and vestiture and stand well apart from their Arizona relative. Their different areas of distribution also argue in favor of their being different species. In the genus *Acmaeodera* the typical Arizona species are most decidedly different from the species

[5] Fall, H. C., Jour. N. Y. Ent. Soc., Vol. vii (1899), p. 21.

found in California outside of the more desert regions of the Southeast. The specimen mentioned by Fall, from Texas, having an intermediate type of vestiture, is either a variety of the Arizona species, or a species distinct from either this or *guttifera*. It cannot be a connecting form, seeing that it is not from intermediate territory but from a region at the extreme end of the distribution of one of the species.

Type and paratype, both females, collected at Florence, Arizona, by C. R. Biederman, in the collection of the American Entomological Society at the Academy of Natural Sciences of Philadelphia. Nine other specimens from the National Museum collection I have also critically examined. Two of these were collected at Catalina Springs, Arizona, April 26 and May 5, by Hubbard and Schwarz, one on *Jatropha multifida*, the other seven at Hot Springs, Arizona, in June, by Barber and Schwarz. One of these was reared from "Palo verde." These nine specimens all have the two anterior discal elytral spots three intervals broad and have five instead of four lateral spots, the additional spot being placed subapically. Four of the Hot Springs specimens I have designated as paratypes, a male and female which will remain in my own collection, and a male and female which will be returned with the five others to the U. S. National Museum. For the privilege of studying the two Florence specimens I am indebted to Dr. Henry Skinner and Mr. E. T. Cresson, Jr., and for the others to Dr. E. A. Schwarz and Mr. H. S. Barber.

Acmaeodera quadrivittata Horn.

This species is not as constant in marking as Dr. George Horn supposed. The specimens from Southern Arizona generally have but one yellow stripe, the lateral one disappearing in certain cases or coalescing with the discal stripe in others. In the latter case the stripes are of course broad and they also often have one or two black spots. These specimens are also generally larger and more robust than typical specimens.

Acmaeodera pubiventris Horn. (Plate VII, figs. 8, 9).

A series of specimens of this species which were collected at Mojave, California, and which were kindly given to me by the collector, Mr. C. L. Fox, have furnished me with the proof

that *A. lanata* Horn and *A. pubiventris* Horn are but phases of one species. *A. lanata* Horn is but a vittate form of the other, as Mr. Fall surmised. *A. biedermanii* Skinner, I find, after having carefully examined the type, is almost an absolute synonym of *A. lanata* Horn. My series shows that the species varies from the typical phase to the vittate phase, var. *lanata* Horn, on one side and, on the other, to a phase having the markings numerous, small and irregular. The vittate phase may be found in the same territory with the others, but usually is not. In this connection I wish to state that several of our species which have unstable color patterns have the same type of variability, possessing a vittate type of maculation as one extreme and a nebulous as the other. Besides the species just discussed, this condition is found in *A. acuta* Lec. and *A. gemina* Horn and approached in *A. hepburni* Lec. and *A. neglecta* Fall.

Acmaeodera plagiaticauda Horn.

As more specimens of this very fine species have been collected we find that it too is very variable. In certain specimens like those from the more desert regions, such as Bishop, California, the lateral fascia of the elytra may have its extreme yellow instead of being all red. In others the discal markings may be entirely eliminated, leaving but three or four marginal spots. In a couple of specimens from the Sierra Madre Mountains, near San Gabriel, the anterior of the three lateral spots was yellow, the other two the normal red. Those specimens which have all of the spots red, narrow and lateral, like certain ones recently secured by Dr. F. E. Blaisdell near Hullville, Lake County, California, look superficially very much like the rare *A. postica* Fall. This last can, however, be separated by having a different type of prosternal margin, by being of a coppery bronze color in contrast to the purplish bronze of the other, and by having the punctures of the elytral striae and intervals of about equal prominence with the striae themselves, poorly developed, whereas in the other the striae and strial punctures are prominent and interval punctures weak. *A. plagiaticauda* Horn has in most cases been beaten from the manzanita, *Arctostaphylos,* and no doubt breeds in this.

Acmaeodera cubaecola Duv. (Plate VII, fig. 6).

This species, as was pointed out by Kerremans in his monograph, is the one that we have for some time been calling *A. pulcherrima* Duv. Mr. Fall in his synopsis had unfortunately accepted the rather hasty determination of Mr. Linell. Mr. Mutchler, of the American Museum of Natural History, who called my attention to the above correction, likewise showed me a Cuban specimen of the true *A. pulcherrima* Duv. which is a very much larger species and quite differently marked, as can be seen by referring to the splendid illustration given in Kerremans' Monograph. The original description of Duval tallies exactly. *A. pulcherrima* Duv. has, so far as I now, never been taken in this country, but the beautiful orange-spotted *A. cubaecola* Duv. has not only been captured in Cuba but on a number of the Florida keys, as Key Largo, Key West and Metacombe Key. The species that we have erroneously listed as *A. cubaecola* Duv. is *A. marginenotata* Chev.[6] It is a Cuban species, but it has also been taken on Key Largo and Metacombe Key, Florida. See Plate VII, fig. 7.

Acmaeodera cribricollis Horn.

I have a typical specimen of this rare species in my collection, taken in the Imperial Valley, California, and have seen, besides, the type from Texas, one other from Southern Arizona. It is thus proven to be a species which has quite an extensive range along our Mexican border.

EXPLANATION OF PLATE VII.

Figures of the right elytra of *Acmaeodera* (enlarged):

No. 1. *Acmaeodera sinuata* n. sp. typical.
No. 2. *Acmaeodera sinuata* n. sp. variety.
No. 3. *Acmaeodera sinuata* var. *sex-notata* n. subsp.
No. 4. *Acmaeodera wenzeli* n. sp.
No. 5. *Acmaeodera wheeleri* n. sp.
No. 6. *Acmaeodera cubaecola* Duv.
No. 7. *Acmaeodera marginenotata* Chev.
No. 8. *Acmaeodera pubiventris* Horn.
No. 9. *Acmaeodera pubiventris* var. *lanata* Horn.

[6] "Coleopteres de i'Ile de Cuba.—Famille de Buprestides, Throscides, Eucnemides et Elaterides," par M. Aug. Chevrolat, Anns. Ent. Soc. Fr., Vol. vii (1867), p. 583.

Notes on Diacrisia virginica (Lep.).

By J. D. MITCHELL, U. S. Bureau of Entomology.

In July, 1917, larvae of *Diacrisia virginica* were observed all over Victoria County, Texas, in limited numbers, feeding on various species of weeds. At Placido they attacked three fields of cotton and, on about one acre in each field, defoliated the cotton, leaving the green bolls on the stalks. They spun cocoons in August. Owing to the extreme drought and the arrival of the cotton leaf worm, *Alabama argillacea*, *Diacrisia virginica* was lost sight of, and its work during the fall was unnoticed.

In May, 1918, severe infestations appeared in Victoria and adjoining counties, and many complaints came in of cotton being damaged. The writer spent some time in observations in Victoria and Calhoun Counties.

The larvae were found feeding on the following plants and shrubs:

Cardiospermum halicacabum	"Balfour vine"
Lupinus subcarnosus	"Blue bonnet"
Cassia occidentalis	"Punk weed"
Cassia chamaecrista	"Partridge pea"
Crotalaria sagittalis	"Rattle weed"
Helianthus multiflora	"Common sunflower"
Helianthus argophyllus	"Satin sunflower"
Helianthus angustifolius	"Prairie sunflower"
Tagetes sp.*	"Marigold"
Convolvulus (two species)	"Bird weed;" "Morning glory"
Lippia nodiflora	"Fog fruit"
Amaranthus retroflexus	"Careless weed"
Amaranthus albus	"Careless weed"
Amaranthus spinosus	"Careless weed"
Amaranthus hybridus	"Careless weed"
Croton capitatus	"Large leaf sage"
Croton texensis	"Narrow leaf sage"
Salvia species	"Wild sage;" "Bush sage"
Iva ciliata	"Marsh elder"
Ambrosia trifida	"Blood weed"
Ambrosia elator	"Rag weed"
Ludivigia natans	"Water purslane"
Parthenium hysterophorus	"Road weed"
Euphorbia sp.	Tall prairie "Milk weed"

Asclepias sp.	Small "Milk weed"
Solanum rostratum	"Horse nettle"
Amphiachyris dracunculoides	"Broom weed"
Monarda punctata	"Horse mint"
Verbesina helianthoides	"Crownbread"
Xanthium strumarium	"Cockle bur"
Chenopodium botrys	"Jerusalem oak"
Chenopodium album	"Lamb's quarter"
Phytolacca decandra	"Poke root"
Eupatorium alternifolium	"Ditch weed"
Xanthoxylum clava-herculis	"Prickly ash"
Acacia farnesiana	"Huisache"

They were found feeding on the following cultivated crops:

Gossypium hirsutum	Cotton
Zea Mays (only the silk is eaten)	Corn
Cucumis melo	Cantaloupe
Medicago sativa	Alfalfa
Arachis hypogoea	Peanut

They eat all garden truck.

The first infestation appeared on weeds in pastures and on the roadsides. Where the weeds were plentiful they did no damage to crops, but where weeds were scarce the caterpillars invaded the fields, especially cotton fields.

When very young, three pounds of Paris green and five pounds of lime, made into fifty gallons of spray, will kill the caterpillars; but where they are large, no poisons or repellants seem to have any effect on them.

Some farmers claim to have kept caterpillars out of their fields, until a fair yield was assured, by dusting ahead of them with pure Paris green. When the caterpillars reached the poisoned plants they turned back. Other farmers claimed to have saved a paying crop by going along the infested side and hand-picking and killing the caterpillars. This was practicable up to August and no doubt did some good. The caterpillars do not feed fast and do not all travel in the same direction as most army worms do.

Up to October all of the caterpillars were of the light yellow variety, occasionally a mature specimen approaching a light brown. After October 10 all caterpillars were black.

* This is possibly *Bocbera papposa* (*Tagetes*).

From May until October 15 there were five fairly well marked generations, although from August on to the end of the season all sizes from very young to mature caterpillars could be found.

About November 1 I first observed dead caterpillars on weed stems. The living caterpillars would clasp the weed, usually as high as they could climb, and die, then swell up and exude a substance which clung to the hairs, giving the dead caterpillars a gray appearance. They would dry and remain clinging to the weed stems until knocked off. On November 5 I counted 701 caterpillars in three different directions from the town of Victoria, 662 dead and 39 still alive.

Between October 26 and November 10 I put 100 mature caterpillars in cages in groups, to carry them through the winter. I have three cocoons from the lot. The balance died of this disease, which has been determined by Doctor Speare as *Entomophthora anticae* Reich.

The caterpillars spin cocoons under trash, dead leaves or clods of earth, frequently in a bunch of twenty to thirty attached to each other.

When the moths emerge they climb up the weed stems to stretch and dry their wings. They usually emerge in the night and I have observed them mating in cages the next day and laying their eggs during the second night and third day. The moths are averse to flying in the daytime and when disturbed stretch their wings straight up, curve the abdomen downward and remain rigid; occasionally one, when thrown high in the air, will use its wings in coming back to the earth, but usually they fall to the earth without an effort to fly. I believe the males fly at night when seeking a mate. I have never observed a moth feeding in the field and I have never had one to feed in captivity, although I have tried them with flowers, fruits and sweets. The usual length of life of captive moths is about five days.

Reports from Jackson and Calhoun Counties indicate that all of the last generation caterpillars are black, and practically all of the caterpillars are dying clinging to the weed stems.

The damage to cotton by *Diacrisia virginica* in Victoria and Calhoun Counties in 1918 is claimed by farmers to be from twenty-five per cent. to total destruction. I visited the land of Mr. Jay Hubbard in Calhoun County, and found the destruction of cotton on sixty-five acres to be complete. The fields of Mr. Hubbard as well as the lands adjoining were free of weeds.

The only parasite bred from this species is *Eremotylus arctiae* Ashmead, which has been determined by R. A. Cushman.

A Melaphis from Moss (Hom.)

By A. C. Baker, U. S. Bureau of Entomology, Washington, D. C.

Only one American species has been recorded in the genus *Melaphis*. This is the type species, *Melaphis rhois* (Fitch), a form which produces galls on the sumach. Certain closely related species, occurring in other countries and like *rhois* forming galls on sumach have been referred to the genus *Schlectendalia*. This genus the writer (Ent. News, Vol. xxviii, p. 385) has placed as a synonym of *Melaphis*. All of the species referable to *Melaphis*, therefore, form galls upon some species of sumach. It is noteworthy that these are fall galls, not spring ones like most of the common galls produced on poplar, etc., by species of *Pemphigus* and other aphids. The spring generations of our *Melaphis rhois* have not been discovered.

On April 29, 1916, Mr. E. B. Blakeslee sent the writer samples of moss which he found infested with an aphid at Springfield, West Virginia. At the time these samples were received only young apterous forms were present. It is quite probable that these were produced by stem mothers originally present, but no such forms were found. The moss was placed in breeding cages and the young insects reared to maturity. All of these proved to be winged forms which were unable to live upon the moss. Slide mounts of several of these were prepared, but before a careful study could be made of them all of the other alate insects were dead.

As soon as a careful study was made of the specimens it

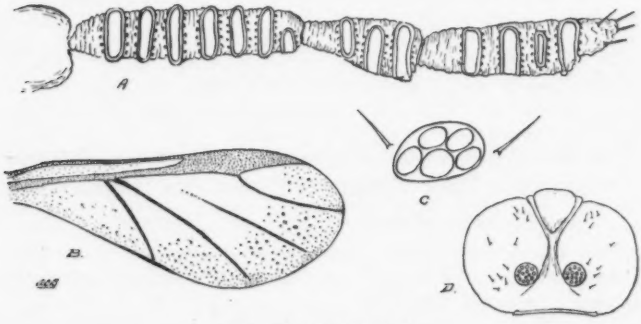
was found that they seemed to fall in the genus *Melaphis*. This had not been suspected or transfers to sumach would have been made to see if by any possible chance these might be the long missing spring migrants of *rhois*. It is true that they differ quite distinctly from *rhois*, but a connection with that species would be a remote possibility and worthy of a trial.

Since the specimens mentioned no other examples have been found and as the species may not be again met with for several years it seems advisable to publish a description of the insect and thus call the attention of other workers to it in the hope that someone may have the opportunity to study its life history.

Melaphis minutus n. sp.

Alate viviparous female.—Color yellowish green. Head and thorax darker. Eyes dark brown. Legs, antennae and borders of wing veins dusky.

Length from vertex to tip of cauda about 0.96 mm., measurements of the antennal segments and their sensoria given in the accompanying



Details of *Melaphis minutus*.

A, Antennal segments III, IV, and V; B, Forewing; C, A caudal pore plate from head; D, Thorax with two pore plates.

table. Sensoria somewhat oval and transverse with a distinctly visible rim and surrounded with a row of dark black points. It is impossible to ascertain the exact nature of these but under the highest power available they appear as minute, thick spines. Segments III, IV and V irregularly imbricated (Fig. 1-a). Head with three pairs of wax-pore plates visible from above, one of these on the vertex, one on the top of

the head, slightly in front of the eyes and the other near the caudal margin of the head. The number of facets in these (Fig. 1-c) varies, the caudal pair having about five each, whereas the more frontal ones have only two. Thorax with two large pore plates near the inner margins of the lobes (Fig. 1-d). These are composed of a rather larger number of facets, there being usually about ten. Forewing (Fig. 1-b) with the veins rather heavy, the media atrophied for some distance at the base. Cubitus and anal arising close together, sometimes united at their bases. Hind wing with the two oblique veins some distance apart at their bases. Hind tibiae about 0.352 mm. long, middle tibiae 0.272 mm. Beak reaching to the hind coxae. Cornicles absent. Abdomen with rather small marginal wax plates. Cauda and anal plate rounded.

DETAILS OF ANTENNAE OF MELAPHIS MINUTUS.

Ant. III	Sen.	Ant. IV	Sen.	Ant. V	Sen.
0.08 mm.	8	0.048 mm.	3	0.08 mm.	4
0.096 mm.	7	0.048 mm.	5	0.08 mm.	4
0.096 mm.	7	0.048 mm.	3	0.08 mm.	4
0.096 mm.	7	0.048 mm.	3	0.064 mm.	4
0.08 mm.	7	0.048 mm.	5	0.064 mm.	4

Described from a number of cotypes on balsam mounts bearing Bureau of Entomology, Q., No. 13052, and reared from moss on May 5, 1916. These slides have been deposited in the United States National Museum Collection.

The Early Stages of Catocala minuta and a Description of a New Variety of C. obscura (Lepid.).

By ERNST SCHWARZ, St. Louis, Missouri.

Ova. Elongated oval, transparent, smooth, glossy, light ochre. Area about micropyle rather large, marked by a ring of many small protuberances; micropyle diminutive.

Larva, Stage I. Head of larva light ochre, body whitish green, tubercle places marked with black dots. The anterior two pairs of prolegs are rudimentary, the posterior two are well developed and are lined posteriorly with black.

Stage II. Head bifurcated, not deeply cleft; color whitish green, and the lines on side of lobes are irregular. Body color greenish white with the longitudinal lines a darker shade of green. The tubercles are marked by black dots. The true and prolegs concolorous; no lateral setae. The ventral portion of the body is white, slightly tinged with green, usual dark blotches present.

Stage III. Head small, bifurcated, rather round, cleft not promi-

nent. The inverted "V" space is lined and centered with an upright black dash. Beyond this space is a perfect "Y" mark of the same color; between this mark and the crest band is a very conspicuous upright line. There are no tubercles below the crest. Body: Color light-ashen, sprinkled with black; tapering in both directions from the eighth segment. There is a mid-dorsal whitish line most conpicuous posteriorly from the elevation on the eighth segment; this elevation has a white center with a black ring at base. All tubercles are black, set in a ring of the ground color of the body; the true legs are concolorous, the prolegs are pinkish with a black oval band, centered with violet. Fringes short, reddish white. The ventral surface is whitish green with the usual blotches black.

*Stage IV. Head with stripes, which are more confluent on top and at the sides than in front. Body gray, with numerous blackish irrorations. Longitudinal lines very narrow and much broken, sometimes hardly traceable, with the intervening space somewhat paler. Eighth segment with the summit of the elevation whitish. Posterior half of seventh and anterior half of eighth segments at the sides pale gray. Fringes at sides fleshy white. Warts black. Underside white, with a black patch on each segment, between the abdominal legs. Thoracic feet translucent white, with black marks on the outside. Abdominal legs with an inverted, black loop on the outside of each. Length 25 mm.

Stage V. Mature larva.—Head semitranslucent, lilac gray, with whitish dots; sides and top of head black. Body sordid gray, densely covered with minute black dots, giving it a gray appearance. Warts small, with the summit orange. Eighth segment with a rather prominent elevation, black, summit pale. Dorsal warts on the last three segments larger than on the others. Fringes at sides pink. Posterior parts of the segments between the longitudinal lines darker than the anterior half. Underside white, with a large black patch on each segment. Thoracic feet bluish white, each with two black dots outside. Length 40 mm. Food plant—Honey locust. (*Gleditsia triacanthos.*)

The descriptions of stages IV and V, as recorded by Beutenmueller for alcoholic specimens, are in every way as I have noted for living material.

Biological Notes. The eggs of *C. minuta* are deposited singly or in clusters, in crevices of bark on large trees, as well as openly on small shrubs of the honey locust. The eggs of this species are not covered with a fibrous substance as are those of *C. titania* and *C. illecta.* The eggs of the latter species are covered with a glossy silken mass. The habits of the larva of

* Stages IV and V are taken verbatim from an article by Wm. Beutenmueller in Bull. Am. Mus. Nat. Hist. 16: 381-82, 1902.

this species are very similar to those of *C. titania.* Bush-beating by day or night is productive for all stages, as they rest near their feeding places. The black tubercles, the thorn-like elevation on the dorsal surface and the whitish mid-dorsal line are all factors in beautifully blending the larva with the color of its surroundings.

Catocala obscura var. **obvia** n. var.

Primaries: Ground color glaucous finely sprinkled with various shades of brown; all lines are prominently dark brown; t. a. line is single-lined anteriorly with light gray. Basal dash is not quite as dark as the t. a. and t. p. lines. This dash runs from the base to the middle of the t. a. line, and from there to the lower part of the subreniform, which is made up of two separate parts, the lower being a part of the t. p. line, while the upper part is oval in shape and smaller in size. Both parts are concolorous with the lining of the t. p. line. The t. p. line is prominent throughout its length, and is lined posteriorly with light gray; the subterminal space is clear light brown; the terminal line is light gray fused with brownish gray, the color of the terminal space. All veins in the space marked with deep brown. The round reniform is concolorous with the subterminal space, ringed and centered with gray.

The lower surface and secondaries above are same as in type. Wing expanse 70 mm.

Habitat.—St. Louis County, Missouri. *Type,* 1 ♂ ; paratypes, 1 ♂, 1 ♀ ; collection of author.

These variants are larger in size than *C. obscura,* and I had at first taken them to be the variety *simulatilis* A. R. Grote, but since in the check list of Barnes and McDunnough *simulatilis* is a synonym of *obscura,* I have felt obliged to give this variety the above name.

A new Genus of Cerambycidae from Wyoming (Col.).

By Clarence E. Mickel, University of Nebraska, Lincoln, Nebraska.

MEGACHEUMA n. gen.

Body subparallel, elongate. Last joint of palpi subtriangular, truncate at the tip. Labrum free. Base of antennae partly enveloped by the eyes. Eyes finely granulated. Antennae subserrate, joints three to six produced above at the apex into

short, sharp spines. Prosternum narrow between the coxae, declivous posteriorly. Anterior two-thirds of mesosternum oblique, posterior third flat. Scutellum very broad, rounded behind. Epimera of metathorax produced over the angles of the first ventral segment. Intercoxal process of first ventral segment rounded. Anterior coxae globular, prominent. Anterior tibiae not grooved. Tibial spurs large. Hind tarsi compressed. Apices of elytra rounded.

Genotype, Megacheuma melanosticum n. sp.

Differs from *Cyllene* and *Trichoxys* by having the prosternum narrow between the coxae, declivous posteriorly rather than vertical, in the subserrate antennae, and the rounded apices of the elytra. Differs from *Calloides* in the subserrate antennae and the prosternum narrow between the coxae rather than wide. Differs from *Arhopalus* in the subserrate antennae and the oblique mesosternum. Differs from *Glycobius* in the form of the antennae which is less serrate and less compressed than in that genus; also the prosternum is narrow between the coxae rather than broad as it is in *Glycobius,* and the elytral apices are rounded rather than truncate.

Megacheuma melanosticum n. sp. (Text figs. 1-3).

♀. Length 16 mm. Body subparallel, elongate, thickly clothed with depressed, lemon-yellow pubescence. Head inserted in the thorax; covered with depressed, lemon-yellow pubescence and very sparse, erect hairs; frons flat, impunctate; a median line running from frons to occiput; vertex with very sparse, moderate, shallow punctures; occipital region bare of pubescence, shiny, moderately and irregularly punctate (some of the punctures confluent, others widely separated).

Antennae reddish testaceous, subserrate, joints three to six produced above at the apex into short, sharp spines; first four joints of antennae covered with depressed, cinereous pubescence; remaining joints opaque and puberulent; second joint of antennae about two-fifths the length of the third, which is equal in length to the fourth; apical joint of antennae one and three-fifths times the length of the penultimate joint, suddenly constricted a little beyond the middle and tipped with very fine, golden pubescence.

Prothorax a little wider than long, sides rather strongly arcuate, very narrowly constricted at the base; covered with cinereous pubescence, except the lemon-yellow pubescence on the sternum and sides,

and a brown, trilobate cloud on the disk. Scutellum very broad, rounded behind. Elytra subparallel, clothed with lemon-yellow pubescence, fasciate with black as shown in figure; apices rounded. Anterior two-thirds of mesosternum oblique, posterior third flat.

Legs reddish testaceous, except the femora which are piceous; clothed with short, depressed, cinereous pubescence and longer, semi-

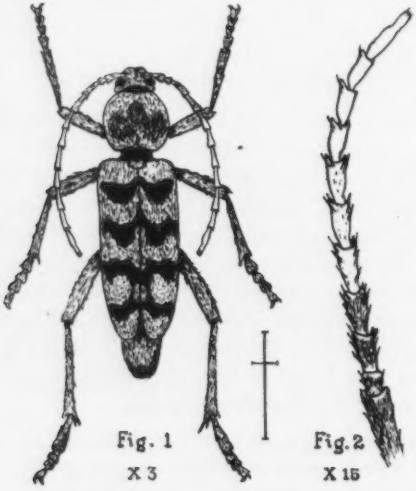


Fig. 1 X 3 Fig. 2 X 15

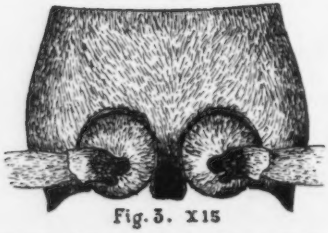


Fig. 3. X15

Megacheuma melanosticum. Fig. 1, dorsal view; fig. 2, antenna; fig. 3, prosternum.

erect, golden-brown pubescence; the latter very sparse on the femora, bcoming denser on the tibiae and tarsi; tarsi with a few, interspersed, black hairs; hind tarsi compressed, the first joint equal in length to the combined lengths of the remaining joints.

♂. Length 13 mm. Differs from the ♀ as follows: The finer, recumbent pubescence of prothorax and legs entirely lemon-yellow except the brown, transverse, median fascia on the disk of pronotum; black fasciae on the elytra a little less extended; first joint of hind tarsi slightly longer than the combined length of the remaining joints.

Type, female; Big Horn Basin, Wyoming, August 13, 1910 (H. S. Smith).

Allotype, male; Big Horn Basin, Wyoming, August 13, 1910 (L. Bruner).

The type and allotype are deposited in the entomological collection of the University of Nebraska.

North American Sarcophagidae; New Species of the Genus Sarcofahrtia R. Parker (Dip.).[1]

By R. R. PARKER, Bozeman, Montana.

Sarcofahrtia montanensis n. sp. (Text figs. 1, 3).

Holotype (male); collection of R. R. Parker.

Length 10 mm. This species differs from the genotype in the following essential characters: Breadth of front at narrowest part about two-fifths that of eye; cheek height approximately three-sevenths that of eye; arista *very short* plumose; costal spine vestigial; calypters without dark hair on margin; hind femur greatly enlarged, arched and with a deep ventral emargination in profile, a row of bristles dorsally on its distal two-thirds, anteriorly, ventrally, and distally with a single bristle; hind tibia with anterior and posterior beards of medium long hair; middle tibia slightly bearded, submesotibial bristle present; fourth abdominal segment dark pollinose throughout; genitalia specific (Fig. 1); forceps prongs approximated.

Described from one male specimen taken at an altitude of 6,000 feet on Beaver Creek, Madison County, Montana, in August, 1913.

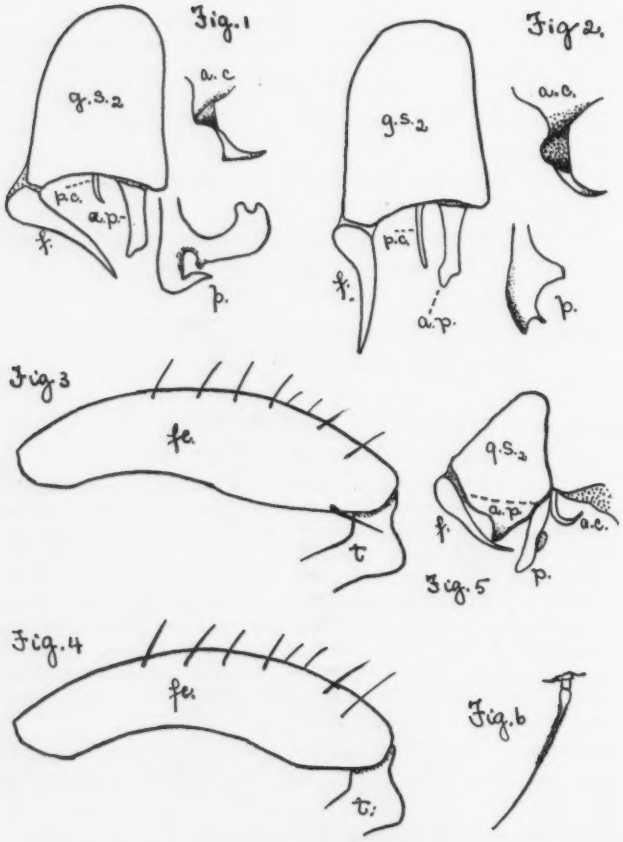
Sarcofahrtia madisoni n. sp. (Text figs. 2, 4).

Holotype (male); collection of R. R. Parker.

Length 9 mm. This species differs little from *S. montanensis* except that the tibiae lack beards, the hind femur is slightly different in shape (Figs. 3, 4), and the genitalia are specific.

Described from one male specimen taken at an altitude of

[1] Contribution from the Entomology Laboratory of the Montana State College, Bozeman, Mont.



EXPLANATION OF FIGURES.

Fig. 1.—Genital segments and accessory structures of *Sarcofahrtia montanensis* n. sp.
Fig. 2.—Genital segments and accessory structures of *S madisoni* n. sp.
Fig. 3.—Profile view of hind femur of *S. montanensis* n. sp.
Fig. 4.—Profile view of hind femur of *S. madisoni* n. sp.
Fig. 5.—Genital segments and accessory structures of *S. atlantica* n. sp.
Fig. 6.—Arista of *S. atlantica* n. sp.

Abbreviations: *a. p.*, accessory plate; *a. c.*, anterior clasper; *p. c.*. posterior clasper; *f.*, forceps; *g. s. 2*, second genital segment; *fe*, femur; *t.*, tibia; *p.*, copulatory organ.

6,000 feet on Beaver Creek, Madison County, Montana, in August, 1913.

The hind femora of *S. montanensis* and *S. madisoni* resemble those of *Metoposarcophaga incurva* (Aldrich), but lack the ventral protuberance and brush.

Sarcofahrtia atlantica n. sp. (Text figs. 5, 6).

Holotype (male); collection of R. R. Parker.

Length 6.5 mm. The essential characters for distinguishing this species are as follows: Gena with irregular row of cilia; second antennal segment light colored; arista pubescent, distal segment slightly bulbous at base; bend of fourth vein an obtuse angle, thence almost a straight line to the margin; section VI of costa very short; scutellum with more than four pairs of bristles; submesotibial bristle absent; the accessory plate is large and seems to be fused with the second genital segment (Fig. 5).

Described from one male specimen collected at Hamden, Connecticut, May 22, 1911, by B. H. Walden.

This species is markedly different from others of the genus.

Table of Species.

1. Hind femur much larger than normal, in profile with ventral emargination 2
   Hind femur of normal size and shape 3
2. Hind femur as in figure 3; genital parts as in figure 1, *S. montanensis* n. sp.
   Hind femur as in figure 4; genital parts as in figure 2, *S. madisoni* n. sp.
3. Arista short plumose, its shape normal..... *S. ravinia* R. Parker
   Arista pubescent, its distal segment slightly bulbous at base, *S. atlantica* n. sp.

The species herein described as new agree with the generic characters as originally listed (Psyche, vol. 23, p. 31, 1916), except that the tibiae are bearded in *S. montanensis* and the genae bear cilia in *S. atlantica.* The accessory plates are of interest due to their position and shape in *montanensis, madisoni* and *ravinia,* and because of their size and apparent fusion with the second genital segment in *atlantica.* The posterior claspers in all the species are smaller than the anterior pair and are approximated on the median dorso-ventral plane. All the species have a row of strong bristles on the "hump" of the first genital segment, but the posterior marginal bristles are weak or lacking.

ENTOMOLOGICAL NEWS.

PHILADELPHIA, PA., JULY, 1919.

International Relations of Entomological Societies after the War.

At the meeting of the Entomological Society of France, held December 24, 1918, the Council of the Society made a report on international relations after the war. After reciting the action taken by the Society from time to time as to its membership from countries with which France was at war, including the expulsion of all those of its members who belonged to enemy nations, as voted on March 28, 1917, the report says [translation]:

Now that the war is finished, the accounts ought to be regulated and definitively closed. Your Council . . . . has been specially incited by the decision recently taken by the interallied conference of scientific academies held at London October 9-11 last. An extract from the resolutions of this conference . . . . have recently been sent to the Entomological Society by the Academy of Sciences. [Then follow quotations from the proceedings of the conference, after which the Council of the society recommended the adoption of this statement:]

The Entomological Society of France declares that, for a period subsequently to be indicated:

1. No individual appertaining to the nations which have made war on the allied nations can be admitted as a member of the Society.

We designedly employ the expression "which have made war," and not "which have been at war," in order to specify that we do not intend to touch by this interdict members of nationalities oppressed for a long time by the German and Austro-Hungarian empires and who found themselves, against their will, in a state of war with us—Danes, Czechs, Poles, Croats, etc., or with greater reason, is it necessary to say, our brothers of all time, Alsatians and Lorrainers.

2. Under penalty of expulsion, no member of the Entomological Society of France can take part in scientific societies of nations which have made war on the allied nations.

Those members of the Society who belong to enemy societies should, as soon as circumstances will permit them, send in their resignations as members of those societies in such way as they prefer, either individually or collectively.

3. Under penalty of expulsion, no member of the Entomological

Society of France can publish anything in the journals or reviews of the enemy countries.

4. The Entomological Society of France does not subscribe directly for any publication of the enemy countries; it will procure those which appear to be necessary through intermediaries.

5. The Entomological Society of France does not furnish its publications directly to any national of the enemy countries; such must, if they desire them, procure them through intermediaries.

Moreover, the Entomological Society of France expresses the wish that, among the reparations which will be demanded from the enemy, the allied and associated governments will include those for injuries caused to allied entomologists by destruction or pillage of their collections and libraries.

The conclusions of this report were put to vote and adopted unanimously. (Bulletin Soc. Ent. France, 1918, No. 20, 1919.)

At the meeting of the same Society, held February 26, 1919, the President, M. E. Moreau, read a letter written in the name of the Entomological Society of Belgium by the latter's Secretary, H. Schouteden, dated Brussels, February 18, 1919, stating, *inter alia,* that the Belgian Society had unanimously ratified the expulsion of all its German and Austro-Hungarian members without exception, and decided to entertain no relations whatsoever with the entomologists of the central empires and not to make any exchange of publications with them. (Bull. Soc. Ent. France, 1919, No. 4.)

The severance of relations between scientific bodies, as above declared, is one of the least of the evils due to the recent war. We can appreciate the feelings of those who decline to have any direct communications with the enemy and it is not to be expected that intercourse will be restored for many years to come. When we turn from these lesser evils to the greater and consider the enormous losses in life, in happiness, in opportunities for productive labor, in property, which to some degree have been experienced by every one of the inhabitants of the civilized world, no punishment can be deemed too severe for the imperialistic group which, positively or negatively, plunged mankind into the horrible struggle. No false notions of forgiveness, charity, or mercy should be allowed to stand between that group and the death penalty.

Entomological Literature.

COMPILED BY E. T. CRESSON, JR., AND J. A. G. REHN.

Under the above head it is intended to note papers received at the Academy of Natural Sciences, of Philadelphia, pertaining to the Entomology of the Americas (North and South), including Arachnida and Myriopoda. Articles irrelevant to American entomology will not be noted; but contributions to anatomy, physiology and embryology of insects, however, whether relating to American or exotic species, will be recorded.

The numbers in **Heavy-Faced Type** refer to the journals, as numbered in the following list, in which the papers are published.

All continued papers, with few exceptions, are recorded only at their first installments.

The records of papers containing new genera or species occurring north of Mexico are all grouped at the end of each Order of which they treat.

For records of Economic Literature, see the Experiment Station Record, Office of Experiment Stations, Washington. Also Review of Applied Entomology, Series A. London. For records of papers on Medical Entomology, see Review of Applied Entomology, Series B.

2—Transactions of the American Entomological Society, Philadelphia. **4**—Canadian Entomologist, London, Canada. **6**—Journal of the New York Entomological Society. **8**—The Entomologist's Monthly Magazine, London. **10**—Proceedings of the Entomological Society of Washington, D. C. **17**—Lepidoptera, Boston, Mass. **20**—Bulletin de la Societe Entomologique de France, Paris. **22**—Bulletin of Entomological Research, London. **32**—Insecta. Revue Illustree d'Entomologie, Rennes. **33**—Annales de la Societe Entomologique de Belgique, Brussels. **50**—Proceedings of the United States National Museum, Washington. **54**—Proceedings of the Biological Society of Washington, D. C. **59**—Journal of Agricultural Research, Washington, D. C. **77**—Comptes Rendus des Seances de la Societe de Biologie, Paris. **80**—Revue Suisse de Zoologie, Geneve. **82**—The Ohio Journal of Science, Columbus. **85**—The Journal of Experimental Zoology, Philadelphia. **88**—Occasional Papers of the Museum of Zoology, University of Michigan, Ann Arbor. **91**—The Scientific Monthly, Lancaster, Pa. **92**—Archives de Zoologie Experimentale et Generale, Paris. **96**—Physis. Revista de la Sociedad Argentina de Ciencias Naturales, Buenos Aires. **97**—Anales del Museo Nacional de Historia Natural de Buenos Aires.

GENERAL. Hopkins, A. D.—The bioclimatic law as applied to entomological research and farm practice. **91**, viii, 496-513. **Jackson, F. S.**—A method for the preservation of insect larvae and pupae. **4**, li, 117-18. **Lochhead, W.**—Class book of economic entomology (P. Blakiston's Son & Co., Phila., Pa., 436 pp.). **Snyder & Shannon**—Notes on the insect fauna of bank swallow's nest in Virginia. **10**, xxi, 110-12. **Weiss & Dickerson**—Insects of the swamp rose-mallow, in New Jersey. **6**, xxvii, 39-68. **Winn, A. F.**—Kirby's insecta: Vol. IV. Fauna Boreali Americana. Restriction of an indefinite locality. **4**, li, 104.

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OBITUARY NOTES

WILLIAM FRANCIS DE VISMES KANE, known for his *Catalogue of the Lepidoptera of Ireland* (1901), *Handbook of the Butterflies of Europe* (1885) and for his writings on other groups of animals, archaeology, etc., died at Drumreaske House, County Monaghan, April 18, 1918. He was born near Exmouth, Devon, England, in 1840. Obituary notices are in the Ent. Mo. Mag., Nov., 1918, and the *Entomologist,* Oct., 1918.

The *Entomologist* (London) for May, 1919, contains an obituary notice of SYDNEY WEBB (1837-1919), a writer of monographs on British Tineina and other Microlepidoptera.

At the meeting of the Entomological Society of France held February 12, 1919, it was announced that "the Grand Duke NICOLAS MICHAILOVITCH, honorary member of the society, and two of his brothers had been recently massacred at Petrograd. The news appears unhappily certain today." The Grand Duke is known entomologically for the nine volumes of "Memoires sur les Lépidoptères rédigés par N. M. Romanoff," St. Petersbourg, 1884-1897, consisting of essays by himself and others on chiefly Palaearctic species and illustrated with colored plates.

Dr. RAPHAEL BLANCHARD, parasitologist and historian of medicine, who died in Paris, February 3, 1919, aged 62, published on pathogenic Diptera and also a separate work, *Les Moustiques* (Paris, 1905). An obituary notice recently appeared in *Science* (April 25, 1919).

JULES KUNKEL D'HERCULAIS, honorary assistant at the National Museum of Natural History, Paris, died December 22, 1918, at Conflans-fin-d'Oise, France, aged 75 years. His work on *Volucella* (1875) was awarded one of the great prizes of the Academy of Sciences. In the course of his studies in Algeria and the Argentine Republic, he published important memoirs on migratory Acrididae and on the early stages of their parasites, *Mylabrus* and Cleridae. (Bull. Soc. Ent. France, 1918, No. 20.)

Dr. W. J. Holland has given an interesting account of the life and activities of the well known collector, HERBERT HUNTINGTON SMITH, in *Science* for May 23, 1919. We hope to have an article from the same pen, specially devoted to Mr. Smith's entomological work, in the next number of the NEWS. Mr. Smith was born at Manlius, New York, January 21, 1851, and killed by accident March 22, 1919, in Alabama.

R. KOBERT, professor of pharmacology at Rostock, whose death on December 27, 1918, aged 64, is announced in *Science* for June 6, was known entomologically for his *Beiträge zur Kenntniss der Giftspinnen* (1901), containing his results on the poison of the Malmignatte (*Latrodectes tredecimguttatus*).

EXCHANGES.

This column is intended only for wants and exchanges, not for advertisements of goods for sale. Notices not exceeding three lines free to subscribers.

☞ **These notices are continued as long as our limited space will allow; the new ones are added at the end of the column, and only when necessary those at the top (being longest in) are discontinued.**

Will pay cash for Pars 39 and 52: Coleopterorum Catalogus, of Junk. Jos. O. Beaulne, 3653 Notre Dame East, Montreal, Canada.

Live Pupae of Sph. chersis, drupiferarum, luscitiosa, eremitus, Phil. achemon, Deid. inscripta, Paon. excaecatus, myops, Eac. imperialis, Cres. juglandis and others for exchange. Wanted—N. A. and Exotic Lepidoptera. Will pay cash for N. A. Catocalas. Herman J. Erb, 925 Hatch Ave., Woodhaven, Lg. Isl., New York.

Wanted for Cash or Exchange—Exotic Lycaenidae and some species from the U. S. Send me your offerta and lowest cash price. Paul N. Musgrave, 130 Oak Street, Clarksburg, W. Va.

Wanted—Syrphidae, Bombylidae and Coccinellidae from all parts of the world in exchange; also Florida insects for those from other regions. P. W. Fattig, Box 315, Gainesville, Fla.

Wanted—Phanaeus, Moneilema and Cleridae for cash or liberal exchange in rarities. Please send your lists to F. J. Psota, 316 So. Mozart St., Chicago.

Diurnal Lepidoptera—I have many desirable western species to exchange. Send lists of offerta. Dr. John Comstock, Southwest Museum, Marmion Way and Ave. 46, Los Angeles, Calif.

Certain Odonata Wanted.—The undersigned desires to examine Gomphus dilatatus and Enallagma pollutum from Florida and nearby States and will much appreciate a loan of such specimens. Please write before sending.—Philip P. Calvert, Zoological Lab'y., University of Pa., Philadelphia, Pa.

Wanted—Species of Dytiscidae, Haliplidae, Gyrinidae and Hydrophilidae, either for exchange or cash. Please send lists. Dr. Geo. W. Bock, 2904 Allen Ave., St. Louis, Mo.

Pentatomidae.—Would like to purchase North American material in this family of Hemiptera. G. Chagnon, P. O. Box 521, Montreal, Canada.

Wanted for Cash—Synopsis of the Erotylidae, by G. R. Crotch, Wm. Beutenmuller, 879 Whitlock Avenue, Bronx, New York, N. Y.

Wanted—Specimens of fleshy and woody fungi from which beetles have been collected, together with names of host trees, names of beetles, localities and dates. All specimens will be gratefully acknowledged and identified, and the information properly accredited. Harry B. Weiss, State Department of Agriculture, Trenton, N. J.

Wanted—Tingulidae from all parts of North America. Material from the far North especially desired. Will buy or exchange. Dr. W. G. Dietz, 21 North Vine Street, Hazleton, Pa.

Aradus.—I am engaged on a review of the North American species of this Hemipterous genus and shall be glad to examine specimens from any part of the continent. Determinations in return for specimens needed in my work.—H. M. PARSHLEY, Smith College, Northampton, Mass.

For Exchange—Live pupae of *E. tityrus* and *H. tenuis*. What have you to offer? Joseph Syrovy, Jr., 4119 W. 21st Place, Chicago, Illinois.

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